WHAT IS CLAIMED IS:

1. An apparatus for capturing particulate within a body lumen, comprising:

a tubular member comprising an inlet and an outlet, the tubular member having a cross-section substantially smaller than across-section of a body lumen such that the tubular member may be introduced into a body lumen generally parallel to a natural direction of fluid flow within the body lumen such that the outlet is oriented downstream of the inlet within the body lumen;

a nozzle disposed within the tubular member and oriented to inject fluid towards the outlet for generating a vacuum at the inlet; and

a filter element on the inlet, the filter element comprising a plurality of openings having a predetermined maximum size for preventing particulate larger than the maximum size from entering the inlet of the tubular member.

2. The apparatus of claim 1, further comprising an elongate member extending from one end of the tubular member, the elongate member having sufficient length that a proximal end of the elongate member may be disposed outside of a patient's body, while the tubular member is disposed within the body lumen.

3. The apparatus of claim 2, wherein the elongate member comprises a lumen communicating with the nozzle for delivering fluid from the proximal end of the elongate member to the nozzle.

4. The apparatus of claim 3, further comprising a source of fluid coupled to the proximal end of the elongate member for delivering fluid via the lumen to the nozzle.

5. The apparatus of claim 1, wherein the inlet is in a proximal end of the tubular member, and wherein the filter element comprises a tubular body extending from the proximal end of the tubular member, the plurality of openings being provided in a wall of the tubular body.

6. The apparatus of claim 1, wherein the filter element comprises a filter mesh covering the inlet, the plurality of openings comprising a plurality of pores in the filter mesh.

7. The apparatus of claim 1, wherein the outlet is provided in a distal end of the tubular member, and wherein the distal end is tapered.

8. The apparatus of claim 1, further comprising an aspirating element for removing particulate captured by the filter element.

9. The apparatus of claim 8, wherein the aspirating element comprises a catheter that is advanceable over the tubular member, the catheter comprising a lumen for removing particulate captured by the filter element.

10. The apparatus of claim 9, wherein the aspirating element comprises a mechanically aspirating pump coupled to a distal end of a catheter for removing particulate via the lumen captured by the filter element.

11. A method for capturing particulate within a body lumen of a patient, the method comprising:

positioning a tubular member within a body lumen, the tubular member comprising an inlet and an outlet, the inlet being located upstream of the outlet within the body lumen; injecting a jet of fluid from within the tubular member towards the outlet, the jet creating a vacuum at the inlet, the vacuum being sufficient to cause fluid downstream of the outlet to flow retrograde through the body lumen around at least a portion of the tubular member into the inlet; and

providing a filter element on the inlet, the filter element comprising a plurality of openings having a predetermined maximum size for preventing particulate larger than the maximum size from entering the inlet, thereby capturing the particulate at a location upstream of the outlet of the tubular member.

12. The method of claim 11, further comprising removing the captured particulate from the body lumen.

13. The method of claim 12, wherein the removing step comprises aspirating the particulate from the location upstream of the outlet.

14. The method of claim 13, wherein the aspirating step comprises advancing a distal end of a catheter into the body lumen to aspirate the particulate into the catheter.

15. The method of claim 14, wherein the jet of fluid is injected from a tubular element, the tubular element having a distal end disposed within the tubular member proximate the outlet.

16. The method of claim 15, wherein the catheter is advanced over the tubular element to aspirate the particulate.

17. The method of claim 11, wherein the body lumen comprises a blood vessel, and wherein the particulate comprises at least one of thrombus, atheroma, plaque, emboli, and occlusive material.

18. The method of claim 11, further comprising releasing occlusive material from a wall of the body lumen at a location upstream from the inlet of the tubular member, the captured particulate comprising material released from the wall having a size larger than the maximum size.

19. The method of claim 11, further comprising performing a procedure at a location upstream from the tubular member, the procedure releasing material from a wall of the body lumen.

20. The method of claim 19, wherein the procedure comprises at least one of thrombolysis, a diagnostic intervention, vibrational dissolution, mechanical dissolution, thrombectomy, atherectomy, angioplasty, and stent delivery.

21. A method for manufacturing a filter element, the method comprising:

providing an elongate tubular mesh having first and second ends, and first and second portions adjacent the first and second ends, respectively;

shaping the tubular mesh into an everted configuration in which the second portion is disposed concentrically within the first portion;

heating the tubular mesh to a predetermined temperature to program the everted configuration into a shape memory of the tubular mesh; and

removing the second portion from within the first portion to dispose the tubular mesh in a generally tubular configuration, the tubular mesh maintaining the tubular configuration in a relaxed state.

22. The method of claim 21, wherein the tubular mesh comprises polymeric material, and wherein the heating step comprises heating the tubular mesh to at least two hundred degrees Celsius for a predetermined time.

23. The method of claim 21, wherein the tubular mesh comprises Nitinol, and wherein the heating step comprises heating the tubular mesh to between about 350-525 degrees Celsius for a predetermined time.

24. The method of claim 21, further comprising attaching first and second elongate members to the first and second ends of the tubular mesh, the first and second elongate members being movable axially with respect to one another to move the first and second ends towards and away from one another.

25. The method of claim 24, wherein the second elongate member comprises a tubular member within which the first elongate member is slidably disposed.

26. A method for capturing particulate within a body lumen of a patient using a tubular filter element on a distal portion and second portions adjacent first and second respective ends of the filter element, the method comprising:

advancing the distal portion of the elongate member to a location within a body lumen downstream of a treatment site, the tubular filter element being disposed in a radially compressed configuration;

directing the first and second ends of the filter element towards one another, whereupon the filter element everts such that the second portion is located substantially within the first portion, and an intermediate portion between the first and second portions expands to engage a wall of the body lumen; and

capturing particulate passing along the body lumen within the everted filter element.

27. The method of claim 26, further comprising:

aspirating particulate captured within the filter element;

directing the first and second ends of the filter element away from one another to remove the second portion from within the first portion;

compressing the filter element radially inward; and

withdrawing the filter element from the body lumen.

28. The method of claim 26, wherein the advancing step comprises directing the first and second ends of the filter element away from one another to compress the filter element radially inwards.

29. The method of claim 28, wherein the first and second ends of the filter element are fixed to distal ends of first and second elongate members, respectively, the first and second elongate members being movable axially relative to one another to evert the filter element.

30. The method of claim 29, wherein the first and second elongate members are movable axially for applying tension to the filter element to collapse the filter element to a radially compressed configuration.

31. The method of claim 30, securing the first and second elongate members relative to one another after applying the tension, thereby constraining the filter element in the radially compressed configuration.

32. The method of claim 26, further comprising removing the captured particulate from the body lumen.

33. The method of claim 32, wherein the removing step comprises aspirating the particulate from the location upstream of the outlet.

34. The method of claim 33, wherein the aspirating step comprises advancing a distal end of a catheter into the body lumen to aspirate the particulate into the catheter.

35. The method of claim 26, further comprising performing a procedure at a location upstream from the tubular member, the procedure releasing material from a wall of the body lumen.

36. The method of claim 35, wherein the procedure comprises at least one of thrombolysis, a diagnostic intervention, vibrational dissolution, mechanical dissolution, thrombectomy, atherectomy, angioplasty, and stent delivery.